

### REMARKS

Favorable reconsideration of this application is requested in view of the above amendments and the following remarks. Applicants appreciate the courtesy shown by the Examiner and his supervisor in discussing this application with the undersigned. The discussions of the interview are reflected in the above amendments and the remarks that follow.

Claims 1-8 are pending. Claims 9-14 have been added. The exclusion of yttria in claims 1 and 8 is supported by the listing of yttria as an optional component in paragraph [0054] and the examples that do not include yttria. Claim 9 is supported at paragraph [0054], claim 10 at paragraphs [0055] and [0110], claim 11 at paragraphs [0054] and [0055], claim 12 at paragraphs [0055] and [0110], claim 13 at paragraphs [0060] and [0062], and claim 14 at paragraph [0110].

Claim 3 was found objectionable. Applicants respectfully contend that the calculation underlying the rejection is incorrect for the following reasons. Claim 3 indicates that it applies to cations other than alkali metal and alkaline earth metal. See also paragraphs [0028] and [0032] of the present specification. Thus, contrary to the calculation in the objection, Na<sub>2</sub>O should not be considered when making the fm calculation. Moreover, the objection is based on the assumption  $(r_1)^2 < (r_2)^2 < (r_3)^2$ . However, actual values are available for these variables. Thus, referring to Example 16 used in the objection, for SiO<sub>2</sub> C<sub>1</sub>=1, Z<sub>1</sub>=4, x<sub>1</sub>=0.49, r<sub>1</sub>=0.40, for TiO<sub>2</sub> C<sub>2</sub>=1, Z<sub>2</sub>=4, x<sub>2</sub>=0.30, r<sub>2</sub>=0.75, r<sub>0</sub>=1.26. Applying the formula for fm in claim 3 to Example 16 results in  $fm = ((x_1 C_1 Z_1 / (r_1 + r_0)^2) + (x_2 C_2 Z_2 / (r_2 + r_0)^2)) / (x_1 C_1 + x_2 C_2)$ . Inserting the above values yields  $((1.96/1.66^2) + (1.22/2.01^2)) / 0.79$ , which equals 1.276. This is within the range of claim 3 and the objection should be withdrawn.

Applicants note that the published version of the present specification in US 2006/0094584 includes a printing error. In the formula, the division sign "/" has been omitted before  $\sum x_i c_i$ . This does not seem to have effected the calculation in the objection.

Claims 1, 2 and 8 have been rejected as anticipated by Zou. Favorable reconsideration of this rejection is requested. Zou is directed to information recording media having crystallized glass substrates having high surface smoothness. Zou specifically discloses that yttria is a critical component to the compositions. See col. 5, lines 1-12. The compositions of claim 1 exclude yttria, and thus are not anticipated. The present compositions have the advantageous property of being suitable for high speed microprocessing without cracking. Nothing in Zou suggests any reason to prepare a composition without yttria, much less to expect that the

advantageous properties of the present compositions could be obtained. Therefore, this rejection should be withdrawn.

Claims 1 and 2 were rejected for obviousness double patenting over USSN 10/262864 and 10/522046. These rejections are moot in view of the Terminal Disclaimer filed herewith. Applicants are not conceding the correctness of the rejections.

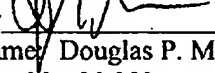
The translation of the International Preliminary Report on Patentability is filed herewith for the Examiner's convenience.

In view of the above, Applicants request reconsideration of the application in the form of a Notice of Allowance.

Respectfully submitted,

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Date: September 22, 2008

By   
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## PATENT COOPERATION TREATY

PCT/JP2004/000085

From the INTERNATIONAL BUREAU

## PCT

NOTIFICATION OF TRANSMITTAL  
OF COPIES OF TRANSLATION  
OF THE INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY  
(CHAPTER I OR CHAPTER II  
OF THE PATENT COOPERATION TREATY)  
(PCT Rules 44bis.3(c) and 72.2)

To:

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JAPON



|  |  |
|--|--|
| Date of mailing (day/month/year)<br>15 September 2005 (15.09.2005) |  |
| Applicant's or agent's file reference<br>FNS03003WO                | IMPORTANT NOTIFICATION   |
| International application No.<br>PCT/JP2004/000085                 | International filing date (day/month/year)<br>08 January 2004 (08.01.2004) |
| Applicant<br>NIPPON SHEET GLASS COMPANY, LIMITED et al             |  |

## 1. Transmittal of the translation to the applicant.



The International Bureau transmits herewith a copy of the English translation of the international preliminary report on patentability (Chapter I).



The International Bureau transmits herewith a copy of the English translation of the international preliminary report on patentability (Chapter II).

## 2. Transmittal of the copy of the translation to the designated or elected Offices.

The International Bureau notifies the applicant that copies of that translation have been transmitted to the following designated or elected Offices requiring such translation:

None

The following designated or elected Offices, having waived the requirement for such a transmittal at this time, will receive copies of that translation from the International Bureau only upon their request:

AE, AG, AL, AM, AP, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EA, EC, EE, EG, EP, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OA, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

## 3. Reminder regarding translation into (one of) the official language(s) of the elected Office(s).

The applicant is reminded that, where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability (Chapter II).

It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned within the applicable time limit (Rule 74.1). See Volume II of the PCT Applicant's Guide for further details.

The International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland

Authorized officer

Masashi Honda

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

|   |  |  |                  |
|---|--|--|------------------|
| Applicant's or agent's file reference<br>FNS03003WO   | FOR FURTHER ACTION   |  | See item 4 below |
| International application No.<br>PCT/JP2004/000085  | International filing date (day/month/year)<br>08 January 2004 (08.01.2004) | Priority date (day/month/year)<br>10 January 2003 (10.01.2003) |                  |
| International Patent Classification (IPC) or national classification and IPC<br>7 C03C 4/00, 3/062, 3/064, 3/083, 3/091 |  |  |                  |
| Applicant<br>NIPPON SHEET GLASS COMPANY, LIMITED  |  |  |                  |

|    |  |   |  |
|----|--|---|--|
| 1. | This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).  |   |  |
| 2. | This REPORT consists of a total of 7 sheets, including this cover sheet.   |   |  |
|    | In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.  |   |  |
| 3. | This report contains indications relating to the following items:  |   |  |
|    | <input checked="" type="checkbox"/> Box No. I  | Basis of the report   |  |
|    | <input type="checkbox"/> Box No. II  | Priority  |  |
|    | <input type="checkbox"/> Box No. III   | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability  |  |
|    | <input type="checkbox"/> Box No. IV  | Lack of unity of invention  |  |
|    | <input checked="" type="checkbox"/> Box No. V  | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |  |
|    | <input checked="" type="checkbox"/> Box No. VI   | Certain documents cited   |  |
|    | <input type="checkbox"/> Box No. VII   | Certain defects in the international application  |  |
|    | <input type="checkbox"/> Box No. VIII  | Certain observations on the international application   |  |
| 4. | The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2). |   |  |

|   |   |
|---|---|
|   | Date of issuance of this report<br>02 September 2005 (02.09.2005) |
| The International Bureau of WIPO<br>34, chemin des Colombettes<br>1211 Geneva 20, Switzerland | Authorized officer<br><br>Masashi Honda                           |
| Facsimile No. +41 22 740 14 35  | Telephone No. +41 22 338 70 10                                    |

## PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

To:

PCT

Translation

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

|   |   |   |  |
|---|---|---|--|
| Applicant's or agent's file reference<br><b>FNS03003WO</b>  |   | Date of mailing<br>(day/month/year) <b>11-05-2004</b> |  |
|   |   | FOR FURTHER ACTION<br>See paragraph 2 below           |  |
| International application No.<br><b>PCT/JP 2004/000085</b>  | International filing date (day/month/year)<br><b>08-01-2004</b> | Priority date (day/month/year)<br><b>10-01-2003</b>   |  |
| International Patent Classification (IPC) or both national classification and IPC<br><b>C03C 4/00, 3/062, 3/064, 3/083, 3/091</b> |   |   |  |
| Applicant<br><b>NIPPON SHEET GLASS COMPANY, LIMITED</b>   |   |   |  |

## 1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability: citations and explanations supporting such statement
- ☒ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

## 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

## 3. For further details, see notes to Form PCT/ISA/220.

|  |                                    |                    |
|--|------------------------------------|--------------------|
| Name and mailing address of the ISA/JP | Date of completion of this opinion | Authorized officer |
| Facsimile No.                          |                                    | Telephone No.      |

Form PCT/ISA/237 (cover sheet) (April 2005)

| <b>WRITTEN OPINION OF THE<br/>INTERNATIONAL SEARCHING AUTHORITY</b>   |                            | International application No. |
|---|----------------------------|-------------------------------|
| <b>Box No. 1</b>  | <b>Basis of the report</b> |                               |
| <p>1. With regard to the language, this opinion has been established on the basis of:</p> <p><input type="checkbox"/> the international application in the language in which it was filed</p> <p><input type="checkbox"/> the translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rule 12.3(a) and 23.1(b)).</p> <p>2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:</p> <p>a. type of material</p> <p><input type="checkbox"/> a sequence listing</p> <p><input type="checkbox"/> table(s) related to the sequence listing</p> <p>b. format of material</p> <p><input type="checkbox"/> on paper</p> <p><input type="checkbox"/> in electronic form</p> <p>c. time of filing/furnishing</p> <p><input type="checkbox"/> contained in the international application as filed</p> <p><input type="checkbox"/> filed together with the international application in electronic form</p> <p><input type="checkbox"/> furnished subsequently to this Authority for the purposes of search</p> <p>3. <input type="checkbox"/> In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.</p> <p>4. Additional comments:</p> |                            |                               |

Form PCT/ISA/237 (Box No. I) (April 2005)

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP 2004/000085

Box No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)

Claims 1-8

YES

Claims

NO

Inventive step (IS)

Claims

YES

Claims 1-8

NO

Industrial applicability (IA)

Claims 1-8

YES

Claims

NO

## 2. Citations and explanations:

Document 1: Hiroshi TSUNETOMO, Hirotaka KOMOCHI and Masanori KOJITANI, "Laser Kakou-you Glass to Sono Oyou," Laser Kakou Gakkai Ronbunshu, 04 December 2002, Vol. 57, pages 26 to 32

Document 2: Hirotaka KOMOCHI, Masanori KOJITANI and Hiroshi TSUNETOMO, "Titanium Gan'yuu Laser Kakou-you Glass no Kaihatsu," Extended Abstracts, The Japan Society of Applied Physics, 24 September 2002, Vol. 63, No. 3, page 978

Document 3: JP 2000-159539 A (Asahi Glass Co., Ltd.), 13 June 2000, claims and example 4

Document 4: JP 11-116267 A (Hoya Corp.), 27 April 1999, claims and example 16 & US 6214429 B1, claims and example 16

Document 5: JP 10-81542 A (Hoya Corp.), 31 March 1998, claims, & US 6214429 B1, claims

The invention that is set forth in claims 1, 2 and 8 does not involve an inventive step in the light of documents 1 to 5 cited in the international search report.

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP 2004/000085

Box No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement

Documents 1 and 2 disclose a feature wherein silica glass that contains titanium is subjected to laser processing. Therein, documents 1 and 2 do not disclose a specific composition for the silica glass; however, it would be easy for a person skilled in the art to conceive of employing a well-known silica glass that contains titanium, such as the silica glass compositions that are disclosed in documents 3 to 5, as the glass material which is subjected to laser processing.

The invention that is set forth in claims 3 to 5 does not involve an inventive step in the light of documents 1-5.

Documents 3 to 5 disclose glass compositions which correspond to the glass compositions that are set forth in claim 1 of the present application; therefore, the glass compositions in question can be considered to exhibit the numerical values which are delimited for the inventions that are set forth in claims 3 to 5.

The invention that is set forth in claims 6 and 7 does not involve an inventive step in the light of documents 1 to 5 cited in the international search report.

Documents 1 and 2 indicate that there is a proportional relationship between the titanium content within the glass and the laser processability thereof; therefore, it would be easy for a person skilled in the art to conceive of establishing a lower limit for the number of Si-O-Ti bonds and the lower limit for the  $N_{Bo}/\alpha$  value that is set forth in claim 7 in order to improve the

Form PCT/ISA/237 (Box No. V) (April 2005)



WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP 2004/000085

Box No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement

laser processability of the glass.

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

**Box No. VI**      **Certain documents cited**

**1. Certain published documents (Rule 43bis.1 and 70.10)**

| Application No.<br>Patent No. | Publication date<br>(day/month/year) | Filing date<br>(day/month/year) | Priority date (valid claim)<br>(day/month/year) |
|-------------------------------|--------------------------------------|---------------------------------|---|
| JP 2003-246638 A<br>[P, X]    | 02-09-2003                           | 22-02-2002                      |   |
| JP 2003-112945 A<br>[P, X]    | 18-04-2003                           | 05-10-2001                      |   |
| JP 2004-107198 A<br>[E, X]    | 08-04-2004                           | 22-07-2003                      | 24-07-2002                                      |

**2. Non-written disclosures (Rule 43bis.1 and 70.9)**

| Kind of non-written disclosure | Date of non-written disclosure<br>(day/month/year) | Date of written disclosure<br>referring to non-written disclosure<br>(day/month/year) |
|--------------------------------|--|---|
|                                |  |   |

Form PCT/ISA/237 (Box No. VI) (April 2005)